

Noteset 3C (Part 3)

Electronegativity

Bond Comparison

<u>Ionic</u>	<u>Polar</u>	<u>NonPolar</u>	<u>Diatomic</u>
Transfer	Unequal share	Equal Share	Same Atoms
$A \xrightarrow{e^-} B$	$A \xleftrightarrow{e^-} B$	$A \xleftrightarrow{e^-} B$	$A \xleftrightarrow{e^-} A$
$ED > 1.9$ and/or w/metal	$ED = 1.9 - 0.5$ no metal	$ED = 0 - 0.5$	$ED = 0.0$

Determine bond type

Al and F
Al: 1.5 F: 4.0
 $ED = 4.0 - 1.5 = 2.5$

Ionic (> 1.9 w/metal)

Al is a metal: Ionic Bond

H and Cl
H: 2.1 Cl: 3.0
 $ED = 3.0 - 2.1$

$= 0.9$
Polar Covalent (0.51-1.9)
Polar Covalent no metal

<u>Ionic</u> > 1.9 w/metal
<u>Polar</u> $0.51 - 1.9$ no metal
<u>Non-Polar</u> $0.1 - 0.5$
<u>Diatomic</u> 0.0

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Determine bond type

Pb and P

Pb: 1.8 P: 2.2

$$\Delta D = 2.2 - 1.8 = 0.4$$

Ionic: metal (> 1.9)

Covalent: no metal (1.9 - 0.5)

Pb is a metal = Ionic

Steps

1. metal? Ionic
(IA-2A, Al, IB-8B,
In, Sn, Tl, Pb, Bi)
2. Calculate ΔD
3. Use chart to determ.
bond type

Ionic

> 1.9 w/metal

Polar

0.51 - 1.9 no metal

Non-Polar

0.1 - 0.5

Diatomic

0.0